REMARKS

Summary of the Office Action

Claims 156, 158-228, 230-291, 394-399, 409-424, 448-455, 457-460, 462-464, 466-468, 470-485, and 523-530 are pending in the application. Claims 1-155, 157, 229, 292-393, 400-408, 425-447, 456, 461, 465, 469, and 486-522 have been cancelled.

Claims 156, 158-165, 167, 169-175, 177, 220, 222-225, 227, 228, 230-234, 236-241, 243-252, 254, 255, 267-269, 271, 272, 274, 275, 286, 287, 289, 290, 394, 395, 397-399, 409-412, 419-424, 451, 452, 457, 474, 475, 479, 480, 484, and 485 were rejected under 35 U.S.C. § 103(a) as being obvious from Findler et al. U.S. Patent No. 5,071,510 ("Findler") in view of Mattox et al. U.S. Patent No. 4,825,277 ("Mattox").

Claims 179-185, 187, 189-194, 196, 207-214, 256-261, 265, 266, 277, 278, 281, 284, 396, 413, 414, 415, 416, 448, 453, 458, 471, 476, and 481 were rejected under 35 U.S.C. § 103(a) as being obvious from Findler in view of Mattox and Stein U.S. Patent No. 4,070,230 ("Stein").

Claims 166, 168, 176, 178, 186, 188, 195, 197-206, 215, 216-219, 221, 226, 235, 242, 253, 262-264, 270, 273, 276, 279, 282, 283, 285, 288, 291, 298, 300, 336, 338, 345, 352, 366, 417, 418, 449, 450, 454, 455, 459, 460, 463, 464, 470, 472, 473, 477, 478, 482, 483, 523-527 and 528-530 were rejected under 35 U.S.C. § 103(a) as being obvious in view of various combinations of Findler, Mattox, Stein, Shimizu et al. U.S. Patent No. 4,618,397 ("Shimizu"), Bergmans et al. U.S. Patent

No. 4,835,765 ("Bergmans"), and Rubinstein et al. U.S. Patent 5,227,959 ("Rubinstein").

Summary of Telephonic Interview

Applicant would like to thank the Examiner for the courtesies extended during the November 8, 2007 interview with the undersigned. During the interview, applicant discussed the Examiner's rejections of the claims in view of Mattox. The Examiner was in agreement that Mattox's references to stress refer to Mattox's isolation walls 26 and oxy-nitride plug 58 in trench 50. In addition, the Examiner was in agreement that Mattox does not show or suggest a complete dielectric layer or membrane.

Reply to the Prior Art Rejection

The Examiner rejected claims 156, 158-165, 167, 169, 172-175, 177, 220, 222-225, 227, 228, 230-234, 236-241, 243-252, 254, 255, 267-269, 271, 272, 274, 275, 286, 287, 289, 394, 395, 397-399, 409-412, 419-424, 451, 452, 457, 474, 475, 479, 480, and 484, under 35 U.S.C. § 103(a) as being obvious from Findler in view of Mattox. The Examiner rejected claims 179-185, 187, 189-194, 196, 207-214, 256-261, 265, 266, 277, 278, 281, 284, 396, 413, 414, 415, 416, 448, 453, 458, 471, 476, and 481 under 35 U.S.C. § 103(a) as being obvious from Findler in view of Mattox and Stein. The Examiner's rejections are respectfully traversed.

Applicant's claimed invention, as defined by amended independent claims 156, 169, 179, 189, 198, 220, 234, and 245 is directed to, inter alia, methods of making and using

integrated circuits that include one or more stress-controlled dielectric layers that are caused to have a stress of about 8×10^8 dynes/cm^2 or less.

Findler discusses forming a micromechanical component with an epitaxy layer 2 (see, e.g., column 5, lines 15-20 and 64-68), and "an intermediate layer 6 of Si_3N_4" (column 5, lines 29 and 30) over an aluminum layer, wherein the intermediate layer of Si_3N_4 is used as part of the passivation of the aluminum layer 5 in combination with an "organic negative photo film 7" (column 5, lines 30 and 31). The intermediate layer 6 of Findler is used as part of the passivation of an aluminum layer to protect its top surface while a portion of the bottom surface is electro-chemically thinned.

Mattox discloses a dielectric (see Mattox, elements 56-57 and 58-59 of FIG. 2C) formed as a tensile oxy-nitride plug in a trench (see Mattox, element 50 of FIG. 2C). The trench is covered by a planarizing layer (see Mattox, element 64 of FIG. 2C) such that the dielectric is completely removed except for unconnected portions in circumferential isolation walls around the device (see Mattox, col. 5, lines 23-34 and elements 26 and 28 of FIG. 1). Thus, the only portion of the original dielectric that remains is the unconnected trenched rings in the substrate, and not a dielectric layer.

The Examiner acknowledges that Findler does not show or suggest applicant's claimed feature of forming stress-controlled dielectric layers that are caused to have a stress of about 8×10^8 dynes/cm^2 or less as defined by independent

claims 156, 169, 179, 189, 198, 220, 234, and 245 and cites Mattox as allegedly making up for this deficiency. In particular, the Examiner alleges that "Mattox et al. further disclose a surface stress between 1 to 2 x 10^8 dynes/cm^2 (col. 8, lines 32-59)" (see Office Action, page 3). Applicant respectfully disagrees.

Applicant respectfully submits that Mattox does not show or suggest forming stress-controlled dielectric layers that are caused to have a stress of about 8 x 10^8 dynes/cm^2 or less, as defined by independent claims 156, 169, 179, 189, 198, 220, 234, and 245. Instead, Mattox discloses the stress of an oxy-nitride mixture used for a plug 58 in a trench 50, which corresponds to circumferential isolation walls 26, 28 in a device (see Mattox, FIGs. 1 and 2C). While Mattox refers to stress, its plug 58 and isolation walls 26, 28 are not dielectric layers. In addition, Mattox also fails to suggest to use the oxy-nitride mixture in a dielectric layer. Accordingly, even if one skilled in the art at the time of the invention would consider using Mattox's plug 58 in Findler, it would be used as an isolation wall to separate the device in Findler from other device elements, not as a stress-controlled dielectric layer.

Accordingly, independent claims 156, 169, 179, 189, 198, 220, 234, and 245, as well as claims 158-168, 170-178, 180-188, 190-197, 199-219, 221-228, 230-233, 235-244, 246-291, 394-399, 409-424, 448-455, 457-460, 462-464, 466-468, 470-485, and 523-530, which depend directly or indirectly from claim 156, 169, 179, 189, 198, 220, 234, or 245, are patentable over the prior art of record.

Conclusion

For the reasons stated above, applicant respectfully submits that this application is in condition for allowance. Reconsideration and prompt allowance of this application are accordingly respectfully requested.

Respectfully submitted,

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